

# ADOPTION OF AGILE PRACTICES FOR ACHIEVING CONSTRUCTION PROJECT SUCCESS IN SRI LANKA: A NARRATIVE REVIEW

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**Abstract:** The construction industry is traditionally characterized by high complexity, fragmentation, and a reliance on rigid, plan-driven methodologies that often lead to cost overruns, schedule delays, and quality issues. This paper examines how agile practices influence construction project success in Sri Lanka. This paper is based on a narrative literature review that synthesizes findings from both global studies and emerging local cases. A conceptual framework is developed linking key agile practices such as iterative planning, cross-functional teams, and continuous feedback with success parameters such as time, cost, quality, and stakeholder satisfaction. The findings highlight that while agile practices have significantly improved project outcomes in software and some infrastructure contexts, Sri Lankan construction is still in an early adoption phase. Rigid contract structures, limited agile expertise, and cultural resistance are identified as the key barriers to adopt agile practices in construction. The study concludes that tailored implementation of agile practices, for example, using Building Information Modeling (BIM) to facilitate flexibility, can help Sri Lankan construction projects achieve the benefits reported in mature contexts. Recommendations for policy and practice include training, pilot projects, and organisational change to sustain agile adoption.

**Keywords:** *Agile project management, Agile techniques, Construction projects, Project success, Sri Lanka*

## 1. Introduction

The global construction sector is a major contributor to economic development, yet it continues to experience chronic underperformance arising from fragmentation, complexity, and a persistent resistance to innovation. Despite its enormous scale valued at more than USD 10 trillion annually the industry frequently suffers from time and cost overruns, operational inefficiencies, and quality failures (Vilca & León, 2024). Traditional, linear project management approaches dominate the sector, with design modifications becoming exponentially more expensive when detected late in the construction process (Akinradewo et al., 2023). These rigid methodologies rely heavily on upfront planning and offer limited capacity to respond to emerging complexities or stakeholder-driven changes, contributing to delayed decision-making and rework (El Mounla et al., 2023).

The concept of project success in construction has expanded significantly in recent decades. Beyond the conventional measures of time, cost, and scope, modern construction projects are evaluated based on safety performance, regulatory compliance, stakeholder satisfaction, long term operational efficiency, and environmental sustainability (Abeygunawardana et al., 2023; Weerasinghe et al., 2020). Achieving these multidimensional outcomes requires strong communication, collaborative governance structures, and proactive risk management (Mavi et al., 2023). However, traditional construction management practices often produce delayed feedback cycles; for example, critical system testing for MEP and HVAC components typically occurs late in the project lifecycle, resulting in costly revisions (Pararajasingam et al., 2024). These constraints have led many scholars to advocate for more flexible and iterative project delivery frameworks, including hybrid and Agile inspired approaches (Yang & Wang, 2025).

In Sri Lanka, the construction sector plays an essential role in national development and contributes significantly to GDP growth (Gnanothayan & Kauškale, 2022). Nevertheless, the industry continues to face severe challenges, including labor shortages, supply chain disruptions, bureaucratic delays, and vulnerabilities arising from macroeconomic instability (Jayasinghe & Palliyaguru, 2023; Weerakoon et al., 2023). Furthermore, the economic crisis and shortages of foreign currency have worsened material procurement delays, increasing project abandonment rates and financial risk (Thejani & Vithana, 2024). Traditional procurement routes remain prevalent, leading to fragmented coordination, inefficient resource use, and limited collaboration across stakeholders (Perera & Waidyasekara, 2015). Studies highlight that Sri Lankan construction projects often experience significant rework, misalignment between design and implementation, and suboptimal sustainability practices (Nadeetharu & Kulatunga, 2022; Wimalarathna et al., 2023).

Against this backdrop, agile practices has emerged internationally as a promising alternative to conventional project

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management frameworks. Agile practices emphasizes adaptability, iterative development cycles, enhanced stakeholder engagement, and rapid response to change attributes that align closely with the dynamic environment of construction projects (Daraojimba et al., 2024). Agile practices such as Scrum, Kanban, and scaled agile frameworks have been increasingly adopted in the design and planning phases of construction, where iterative review cycles and collaborative communication can yield substantial benefits (Ng et al., 2023; Gunasekaran, 1999). Empirical evidence suggests that agile managed projects achieve higher levels of schedule adherence, budget stability, and client satisfaction compared to traditional approaches (Serrador & Pinto, 2015; Ogirri & Idugie, 2024). In the preconstruction stage, agile has demonstrated the capacity to reduce rework, improve design coordination, and support continuous stakeholder engagement (Moreno et al., 2024).

Although the global construction sector is still progressing toward the full institutionalization of agile delivery, recent systematic reviews and empirical case studies indicate a clear increase in international experimentation with agile practices and hybrid methods, particularly during design and pre construction phases where iterative development and digital collaboration tools are most viable (e.g., Moreno et al., 2024; Vilca and León 2024). This emerging body of work demonstrates the use of sprints, backlogs, cross-functional design collaboration and continuous stakeholder feedback across multiple countries, signaling a gradual but steady rise in agile uptake. Agile adoption is widely described as evolving through identifiable maturity stages typically moving from awareness → initial experimentation → organizational adoption → scaling (Conforto et al., 2016; Denning, 2019) providing a structured way to classify the extent of adoption across industries. When positioned within this framework, Sri Lanka is currently at the pilot/experimental stage, as existing evidence remains limited but promising. The conclusion reported by Chathuranga et al. (2023) derives from their systematic literature review and a single firm empirical case study of a Sri Lankan architectural consultancy that applied BIM enabled iterative design cycles and collaborative planning. Additionally, research on Lean agile maturity in local firms reveals increasing interest but low foundational readiness, highlighting gaps in training, digital capability, and organizational culture (Jayanetti et al., 2024; Chathuranga & Siriwardana, 2023). Given the industry's persistent inefficiencies, emerging sustainability demands, and the need for adaptive project delivery, introducing agile practices into Sri Lanka's construction sector represents a timely and necessary shift.

This paper undertakes a literature based investigation into the role of agile practices in enhancing construction project success, with emphasis on global trends and the Sri Lankan context. A conceptual framework is developed based on the synthesis of international and local studies. The discussion highlights the contrast between global agile success cases and Sri Lanka's early stage adoption while examining how agile principles can address construction sustainability challenges and industry vulnerabilities.

## 2. Methodology

This study is based on a comprehensive narrative literature review that synthesises published research on agile project management in construction, both globally and within Sri Lanka. The review analysed and compared prior studies under four key themes: (1) the need for agile practices in the construction industry, (2) the features and applications of agile methods, (3) empirical evidence on project outcomes, and (4) contextual factors affecting Sri Lankan construction. Global studies (e.g., Serrador & Pinto, 2015; Moreno et al., 2024; Vilca & León, 2024) were examined alongside regional sources (Chathuranga et al., 2021; Jayanetti et al., 2024) to highlight similarities, differences and emerging gaps. The analysis draws solely on secondary data and synthesises these insights to construct a conceptual framework. To ensure credibility and relevance, literature was selected using clear criteria: sources were included if they examined agile or hybrid project management, focused on construction or provided transferable insights, were published between 2010 and 2024, and offered empirical or conceptual contributions. Non-scholarly and methodologically weak sources were excluded. These criteria ensure that the narrative review is grounded in credible, contemporary and contextually meaningful evidence.

## 3. The need for agile practices in construction industry

In the construction industry, project success is increasingly recognized as a combination of traditional performance outcomes and broader stakeholder oriented measures. Recent studies highlight that construction project success increasingly depends on collaborative planning, iterative coordination, and adaptability to changing requirements (e.g., Mavi et al., 2023; Serrador & Pinto, 2015; Vilca & León, 2024). The inherent complexity of construction projects characterized by multiple sequential phases such as planning, design, and construction, and involving numerous contractors and stakeholders makes late changes especially costly and difficult to manage, as decisions taken in early stages significantly influence downstream performance (Moreno et al., 2024).

Sri Lanka's construction industry faces significant macroeconomic challenges such as financial instability, currency fluctuations, and supply chain constraints that limit the adoption of sustainable practices (Wimalarathna et al., 2023; Herath & Ranasinghe, 2020). Under these pressures, immediate cost considerations often outweigh long term environmental benefits, reducing investment in sustainable materials and green technologies (Jayanetti et al., 2024). The literature suggests that unless these systemic issues including supportive policies, market incentives, and access to funding are addressed, agile

practices alone cannot guarantee sustainability improvements (Wimalarathna et al., 2023). Therefore, effective agile practices implementation in Sri Lanka's construction sector must be deliberately coupled with explicit sustainability objectives. Local researchers recommend integrating lifecycle assessment tools and project wide analytics alongside agile practices to embed environmental performance into routine project planning and execution (EL Mounla et al., 2023 et al., 2023; Jayanetti et al., 2024).

Sustainability is an important lens on Sri Lanka's construction industry. Global and local studies note that although environmental and social concerns are increasingly emphasised in the construction sector, Sri Lanka continues to experience limited uptake of sustainable and green practices. Recent Sri Lankan analyses report that sustainable construction frameworks remain underutilised due to weak regulatory enforcement, limited industry awareness, and financial constraints (Athapaththu & Karunasena, 2017; Wimalarathna et al., 2023; Abeygunawardana et al., 2023). Broader sector studies also highlight challenges such as ineffective material management and fragmented adoption of sustainability-oriented technologies, further restricting progress toward greener construction practices (Pararajasingam et al., 2024; Thayaparan & Siriwardena, 2023). These findings collectively demonstrate that while sustainability discourse is gaining traction globally, structural, behavioural, and economic barriers continue to hinder widespread sustainable construction implementation in the Sri Lankan industry. Recent analyses reveal that sustainability mandates such as energy-efficient design, waste minimisation and other green construction requirements remain poorly enforced and inadequately incentivised in Sri Lanka, with studies reporting gaps in regulatory implementation, limited industry compliance and cost related barriers to adopting sustainable practices (Athapaththu & Karunasena, 2017; Abeygunawardana et al., 2023; Wimalarathna et al., 2023). Barriers include regulatory gaps, low awareness, and financial constraints. For instance, Weerakoon et al. (2023) report that many firms lack the knowledge or motivation to integrate sustainable construction methods, even though such practices could improve long term cost efficiency and resilience.

These challenges have motivated the industry to explore more flexible and collaborative management approaches. Methods such as Lean Construction and Integrated Project Delivery have gained prominence for their emphasis on continuous improvement, waste reduction, teamwork, and adaptability principles that strongly align with agile thinking (El Mounla et al., 2023; Jayanetti et al., 2024). As a result, there is a growing interest in applying agile concepts to address traditional construction challenges and enhance overall project success (Chathuranga et al., 2023; Ng et al., 2023).

Agile practices have the potential to intersect positively with challenges in the construction sector. Agile's emphasis on lean thinking and iterative improvement inherently aligns with principles of waste minimisation and efficient resource utilisation (Ebirim et al., 2024; Akinradewo et al., 2023). Hybrid frameworks that integrate Agile with Building Information Modelling and the lean last planner system have demonstrated improved sustainability performance in several case studies (EL Mounla et al., 2023 et al.; Ng et al., 2023). For example, Yang & Wang (2025) showed that combining Scrum with BIM enabled project teams to identify and eliminate construction waste at earlier stages of the project, thereby supporting greener outcomes. Furthermore, agile's culture of continuous stakeholder feedback can reinforce sustainable design choices, as client priorities including environmental considerations can be incorporated during each iteration rather than postponed until late in the project cycle (Mavi et al., 2023 & Fontana et al., 2015). In theory, agile teams are better equipped to manage evolving sustainability requirements dynamically, avoiding the tendency to treat environmental mandates as afterthoughts (Chathuranga et al. 2023). In this regard, the next section reviews the features of agile practices.

## 4. Agile Practices

As the literature highlights the growing need for more flexible and collaborative project delivery approaches in construction, the next body of research focuses on how agile methods are operationalized in practice, detailing the specific features and applications that address these industry challenges

### 4.1 KEY FEATURES OF AGILE PRACTICES

A core feature of agile practice is its emphasis on iterative and incremental delivery, where work is divided into short, manageable cycles or "sprints" that typically last between two and six weeks (Daraojimba et al., 2024). Each cycle produces a functional increment of the final output, enabling teams to frequently review progress, identify deviations early and adjust strategies accordingly. This sprint-based "burn-down" approach helps minimise project risks and provides stakeholders with frequent demonstrations of tangible results (Serrador & Pinto, 2015).

Responsiveness to change is another key feature of agile practice. Agile practices are designed to welcome and accommodate changing requirements even late in the project lifecycle. This flexible approach, which allows scope adjustments to be made based on new information, stakeholder insights or evolving project conditions (Ogirri & Idugie, 2024). By promoting adaptive planning, agile ensures that project outcomes remain aligned with stakeholder expectations and deliver maximum value throughout the process (Daraojimba et al., 2024).

One of the key features which are significant to achieve project success is collaboration and communication. Agile strongly emphasizes continuous collaboration among project team members and key stakeholders. Frequent communication often daily helps ensure transparency, shared understanding and rapid issue resolution (Daraojimba et al.,

2024). Cross-functional teamwork is central to agile delivery, as business representatives and technical teams work together to refine requirements and priorities tasks. Agile teams are also encouraged to be self-organising, coordinating their own responsibilities and collectively owning project outcomes (Ogirri & Idugie, 2024). This collaborative environment keeps the entire team aligned and improves decision-making agility.

With all the above features discussed about agile practice is meant for continuous improvement. Agile team’s priorities systematic reflection and learning through regular review sessions such as sprint retrospectives, where they assess process performance and identify opportunities for improvement (Daraojimba et al., 2024). By maintaining “just enough” planning and documentation and adapting their processes iteratively, teams enhance efficiency, product quality and team morale over time (Serrador & Pinto, 2015). This ongoing learning cycle is essential to agile project success and contributes to both short-term adaptability and long-term performance improvement.

#### 4.2 APPLICATION OF AGILE ACROSS VARIOUS SECTORS

Agile methodology, rooted in the 2001 Agile Manifesto, emphasizes iterative development, close customer collaboration, empowered teams, and responsiveness to change. Its adaptable structure enables faster delivery, better customer alignment, and resilience in dynamic environments (Rigby, Sutherland, & Takeuchi, 2016; Askarpour, Kokaly, & Ramesh, 2024). As global market volatility increases, agile’s relevance has grown across diverse sectors, each adapting its principles to meet specific demands and constraints. Table 1 presents an analysis on the agile applications across the industries worldwide.

Table 1: Agile practices across industries

Industry / Sector	Agile Application	Benefits	Challenges / Constraints	References
Information Technology	Scrum, Kanban, short sprints, continuous integration, cross-functional teams	Faster delivery, rapid feedback, alignment with end-user needs, higher project success rates	Scaling in large enterprises, coordination issues, cultural friction, legacy system alignment	[1], [2], [3], [4]
Manufacturing & Automotive	Agile manufacturing, Lean integration, iterative product design, Smart Agile with IoT	Operational flexibility, rapid response to market changes, improved traceability, responsiveness	Safety and regulatory constraints, transformation barriers	[5], [6], [7]
NGO & Nonprofit	Iterative planning, Scrum for logistics and info management	Better adaptation to donor/community needs, optimized resource utilization	Rigid donor protocols, risk aversion, lack of agile training, funding limitations	[8]
Healthcare & Pharmaceuticals	Adaptive clinical trials, software deployment in hospitals, R&D acceleration	Increased R&D throughput, faster software deployment, improved coordination	Regulatory compliance, safety constraints, iterative limitations, hybrid approach needed	[3], [4], [9], [10]
Financial Services & Banking	Enterprise-wide Scrum, SAFe, hybrid with traditional project controls	Enhanced productivity, reduced time-to-market, responsiveness to digital banking & RegTech	Legacy systems, regulatory constraints, governance complexity	[4], [11], [12]
Education	Scrum/Kanban for classroom projects, iterative assessment, daily stand-ups	Student-centered learning, continuous feedback, improved engagement	Curriculum standards, accreditation, lack of teacher training	[13]
Telecommunications & Media	Cross-functional teams for digital platforms, iterative app & service development	Increased speed, innovation, adaptive content delivery	Legacy infrastructure, network reliability, limited enterprise-scale adoption	[14], [15]
Retail & E-Commerce	Continuous deployment, A/B testing, responsive supply chains, “two-pizza teams”	Rapid feature updates, agile supply chains, better alignment with consumer demand	Integration with physical operations, inventory/procurement system limitations	[1], [16], [17]
Aerospace & Defense	Agile for software systems, capability-driven iterations, hybrid models	Accelerated development cycles, improved user feedback integration	Safety-critical standards, multi-layered compliance, limited full-scale transformation	[10], [18]
[1] Rigby, et al.,2016; [2] Askarpour, et al., 2024; [3] Smith, et al., 2019; [4] Jacobs, et al., 2017; [5] Chandna, et al., 2022; [6] Jadoon et al., 2020; [7] Askarpour et al., 2024; [8] AbuKhamis, et al., 2022; [9] Apple et al., 2019; [10] Van der				

Heijden, 2025; [11] Deloitte, 2014; [12] Jacobs & Schlatmann, 2017; [13] Salza, et al., 2019; [14] Krag Esbensen, et al., 2019; [15] Matthey et al., 2019; [16] Denning, 2019; [17] Rigby et al., 2016; [18] U.S. Government Accountability Office, 2023

Research globally suggests agile practices substantially benefit project performance in complex, changeable environments. Serrador and Pinto's meta-analysis (2015) finds agile projects are 19% –21% more likely to meet time and budget targets than traditional ones. Similarly, Ogirri and Idugie (2024) report Agile-managed IT projects show up to 20% higher success rates than Waterfall counterparts. Construction studies echo these trends: Moreno et al. 2024; Kamble et al., 2018 document that agile implementation in construction yields greater adaptability, team collaboration, and fewer budget/schedule overruns. In practice, cross-disciplinary Scrum teams and visual tools improve communication; early errors are caught and fixed, reducing costly rework late in construction. For example, Moreno et al. (2024) report significant reductions in both delays and overruns when Scrum was used during the pre-construction phase. Yang & Wang (2025) find that hybrid Agile Lean models (combining Scrum sprints with Lean Last Planner System and BIM) dramatically improve coordination and sustainability performance. Overall, global evidence portrays agile as enabling responsive, client-focused delivery: clients engage regularly through reviews and demos, which boosts satisfaction. Core agile practices contribute to these successes. Maintaining a dynamic backlog and conducting sprint retrospectives reinforce alignment and continuous improvement. Daily stand up meetings and Kanban boards increase transparency and highlight obstacles in real time. Such iterative feedback loops mean teams can pivot before costly late stage changes. Meta analytic data underscores this efficiency: Agile-led teams deliver more usable output earlier and manage change with less budget impact. In short, where agility is fully embraced, projects tend to outperform traditional expectations on multiple success dimensions.

## 5. Agile Practices for Construction Project Success

Understanding how agile methods are applied provides a foundation for evaluating their effectiveness, and therefore the literature naturally progresses toward empirical studies that assess the outcomes of agile adoption across construction projects

### 5.1 ADOPTION OF AGILE PRACTICES IN CONSTRUCTION

The literature demonstrates a growing interest in the adoption of agile methodologies in the construction sector, driven by the potential for improved performance and responsiveness. Chathuranga et al. (2023) emphasize that agile practices have become increasingly prominent in building projects due to the advantages it offers over traditional management approaches. These advantages include enhanced collaboration, faster feedback cycles and improved flexibility, which collectively support more efficient project delivery. Adopting agile practices in construction typically involves tailoring tools and routines such as backlogs, sprints, daily stand ups and iterative reviews to suit the unique characteristics of construction workflows (Moreno et al., 2024). Several studies highlight positive outcomes from such adaptations. For example, agile inspired practices have been shown to contribute to improved schedule performance, cost efficiency and team integration in complex construction environments (Ng et al., 2023). Systematic reviews further confirm that agile frameworks can improve coordination, reduce rework and strengthen communication among multidisciplinary teams, ultimately leading to higher productivity (Vilca & León, 2024)

Overall, aligning agile practices with construction project success criteria reveals strong complementarities. Iterative cycles and frequent reviews support timely delivery and enhanced quality control, while continuous stakeholder engagement reinforces client satisfaction and requirement fulfillment. Evidence from broader project management research also indicates that agile practices contribute positively to project success by improving adaptability, collaboration and team learning (Serrador & Pinto, 2015). Taken together, the literature suggests that carefully adapting agile practices to construction contexts can enhance not only traditional performance outcomes time, cost and quality but also softer dimensions such as stakeholder engagement, team cohesion and organisational learning.

### 5.2 BARRIERS TO ADOPT AGILE PRACTICE IN CONSTRUCTION INDUSTRY

While global empirical evidence demonstrates varied benefits and limitations of agile practices, these findings must be interpreted within local conditions; consequently, recent studies examine the unique contextual factors influencing agile adoption within the Sri Lankan construction sector.

Overall, research indicates that agile maturity in construction is an evolving process that must be adapted to sector-specific realities. Higher maturity levels characterised by empowered teams, continuous improvement, and robust agile practices have been associated with enhanced collaboration, efficiency, and client satisfaction (Henriques & Tanner, 2020; Vasylieva et al., 2023; Cohan & Glazer, 2009; Nuraminah, 2016). Evidence supports the use of hybrid agile models, incremental implementation, targeted training, and strong leadership commitment as critical enablers for embedding agile principles in construction projects while mitigating cultural, contractual, and operational barriers. Table 2 simplifies the categorised barriers of adopting agile practices in construction industry.

Table 2 Barriers to Adopting Agile Practices in the Construction Industry

Category	Barriers Identified	Supporting References
Organizational and Cultural Barriers	Resistance to change among project stakeholders.	[1], [2]
	Lack of awareness and training on Agile methods.	[1], [2]
	Limited leadership and management support.	[3]
	Lack of continuous support such as coaching or mentoring.	[4], [5]
	Hierarchical structures limiting team self-organization.	[6], [7]
Contractual and Regulatory Barriers	Fixed-price and fixed-scope contracts reducing flexibility.	[8], [7]
	Procurement and regulatory systems incompatible with Agile.	[8], [7]
	Public-sector bidding rules restricting iteration.	[8], [7]
	Client reluctance to engage in iterative feedback cycles.	[9]
Operational and Technological Barriers	Long lead times and interdependent work packages.	[9]
	Limited digital infrastructure and BIM integration.	[9]
	Rigid, highly regulated project environments.	[10]
	Difficulty adapting traditional Agile methods to construction.	[10]
	Lack of suitable hybrid frameworks (e.g., Lean-Agile, Scrumban).	[11]
[1] Henriques & Tanner (2020); [2] Gren, Goldman, & Jacobsson (2019, 2020); [3] Corrigan, van der Poll, & Mtsweni (2018); [4] Silva et al., (2014); [5] Soares & Meira (2014); [6] Moreno et al. (2024); [7] Elshaboury et al., (2022); [8] Askour et al., (2023); [9] Garcia De Soto et al. (2019); [10] Vasylieva, Kuhrmann, Xavier, & Klünder (s2023); [11] Viduka, Balaban, & Bašić (2024); Kanade et al., (2025); Coda (2024); Konabos (2024)		

## 6. Conceptual Framework

The adoption of agile practices within the Sri Lankan construction industry remains at an early stage. Evidence from recent studies shows that lean and agile maturity levels are still relatively low, with key parameters such as collaborative planning, supply chain integration and cultural adaptability only partially embedded in practice (Jayanetti et al., 2024). Their Delphi study identified eighteen contextual factors specifically relevant to Sri Lankan construction projects, demonstrating that although lean and agile concepts are increasingly recognised, their systematic implementation is only beginning to emerge. Similar findings by Sendanayake et al. (2024) indicate that limited technological integration and organisational readiness further constrain the shift toward agile oriented processes.

Despite these constraints, initial applications of agile practices demonstrate promising outcomes. Chathuranga et al. (2023) document the use of Scrum in a complex building design project undertaken by a Colombo based architectural firm. When combined with Building Information Modelling, the agile practices led to greater design flexibility, enhanced team coordination and reduced rework. These observations align with broader evidence suggesting that digital tools, including BIM and Lean BIM integrations, support agile workflows in early project stages (El Mounla et al., 2023). Importantly, firms experimenting with agile practices tend to invest in targeted training and process adaptation to suit local conditions (Chathuranga & Siriwardana, 2023).

Overall, the path of agile adoption in Sri Lanka appears cautiously progressive. Organisations are showing increasing interest in integrating lean and agile concepts into project management education, procurement approaches and execution processes. However, scholars emphasise the importance of contextual alignment, noting that agile must be adapted to local industry characteristics, particularly fixed contract environments and site-level constraints. Frameworks such as Lean Agile hybrids and scaled agile models proposed for construction adaptation projects offer potential solutions by balancing structured lean tools with iterative client engagement (Ng et al., 2023; Yang & Wang, 2025). Ultimately, the Sri Lankan literature suggests that agile adoption will advance incrementally, depending on the development of skilled personnel, supportive organisational cultures and procurement mechanisms that enable iterative, collaborative delivery.

Based on the above literature review, the authors have developed a conceptual framework to guide this study, as shown in Figure 1. The proposed conceptual framework will help to understand how agile practices relate to project success in construction. The framework integrates (i) Contextual Factors of the construction environment, (ii) Agile Practice Adoption, (iii) Enablers and Barriers, and (iv) Project Success Outcomes.

- Construction Context (Global/Sri Lankan): Characterised by project complexity, regulatory demands, supply-chain structure, and sustainability imperatives. For example, construction is inherently fragmented and risk prone. In Sri Lanka, additional factors include volatile economies and resource constraints.
- Agile Practices: Encompasses methodologies like Scrum, Kanban, Lean-Agile, and hybrids (Scrum ban). Each brings tools for adaptation and collaboration. (Figure 1 shows an example of a Kanban board, illustrating agile's emphasis on visualising work stages to improve workflow.)
- Enablers / Barriers: Organisational and environmental factors that influence agile adoption. Key enablers cited include executive support, training, cross-functional teams, and technology (e.g. BIM). Barriers include rigid contracts, hierarchical cultures, scarce skilled labor, and limited awareness of agile.

- Project Success Outcomes: Goes beyond the iron triangle (time, cost) to include quality, stakeholder satisfaction, and even sustainability performance. Agile is expected to impact these outcomes positively (e.g. reduced defects, higher owner satisfaction).

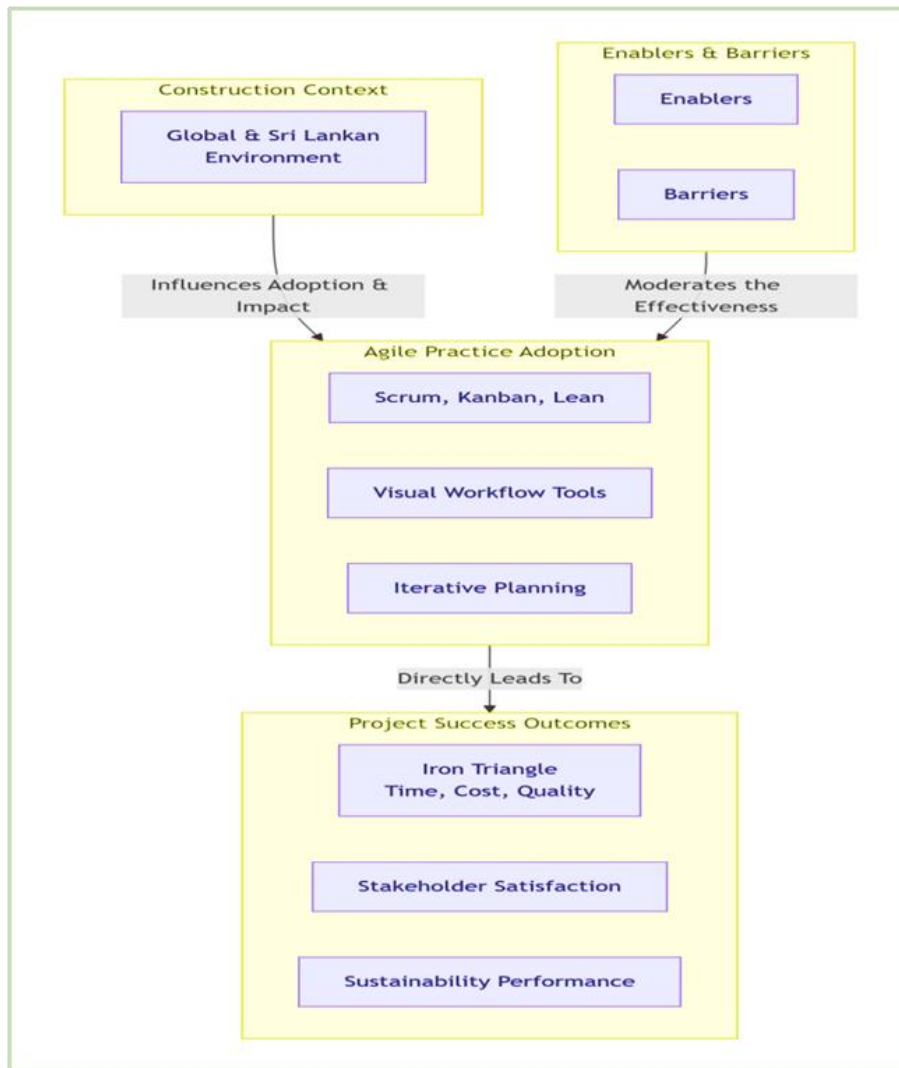


Figure 1. Conceptual framework linking agile practices, enabling conditions, and project success.

This framework posits that the adoption of agile practices is a strategic response to the challenges of the modern Construction Context, particularly in volatile environments like Sri Lanka. The degree to which this adoption leads to superior Project Success Outcomes is not direct; it is powerfully moderated by the presence of Enablers and the absence of Barriers. For the Sri Lankan construction industry to harness the benefits of Agile, a concerted effort is needed to cultivate enablers (e.g., leadership training, BIM investment) and systematically dismantle barriers (e.g., developing new contract forms, promoting cultural change). This framework provides a model for understanding and researching these critical relationships.

## 7. Conclusion

This literature-based study reveals that adopting agile practices in construction can significantly enhance project success, but meaningful gains depend on context. Globally, studies consistently find that agile-managed projects deliver higher success rates (time, cost, quality) and greater stakeholder satisfaction than traditional projects. These benefits arise from agile's core features: iterative planning, cross-functional teams, and continuous feedback loops.

In Sri Lanka, construction projects face severe inefficiencies (e.g. 80–90% overruns and delays) under rigid project management regimes. The literature indicates that agile adoption is nascent but promising. Early applications (e.g. Scrum in design) have improved flexibility and coordination. To translate global successes to Sri Lanka, the industry must address enablers and barriers: invest in training, adapt contracts for iterative delivery, and leverage digital tools like BIM. Additionally, integrating agile with sustainability is critical: Sri Lankan firms should use agile's adaptability to incorporate green practices iteratively, while policymakers and clients must create incentives for sustainable outcomes.

In conclusion, agile project management offers a viable alternative to traditional methods in Sri Lankan construction. Realising its potential will require customising agile principles to local realities. As studies suggest, gradually embedding Agile/Lean concepts into education, procurement, and organisational culture could help the industry overcome persistent delays and cost overruns. Future research could involve empirical evaluation of agile pilots in Sri Lankan projects to quantify performance improvements and refine the conceptual framework proposed here.

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